

What is Claimed is:

[c1] A digital halftoning system that converts continuous tone image data to halftone image data, comprising:

- a plurality of Holladay counters;
- a selection circuit that selects one of the plurality of Holladay counters based on a selection indicator;
- a look-up table having a plurality of halftone screens, wherein the look-up table outputs halftone image data based on a state of the selected Holladay counter and the continuous tone image data; and
- a digital logic circuit that receives the halftone image data, and that, based on the selection indicator, either passes the halftone image data without changes or selects at least a portion of the halftone image data and replicates the selected portion of the halftone image data to produce replicated halftone image data.

[c2] The digital halftoning system of claim 1, wherein the plurality of halftone screens includes at least a clustered-dot halftone screen and a stochastic halftone screen.

[c3] The digital halftoning system of claim 1, wherein the look-up table outputs high addressability halftone image data having a spatial resolution that is greater than a spatial resolution of the continuous tone image data.

[c4] A digital halftoning system that converts continuous tone image data to halftone image data, comprising:

- a plurality of Holladay counters;
- a selection circuit that selects one of the plurality of Holladay counters based on a selection indicator;
- a look-up table having a plurality of halftone screens, wherein the look-up table outputs a set of threshold values based on a state of the selected Holladay counter; and
- a comparator that compares each of the threshold image values of the set from the look-up table to the continuous tone image data to produce halftone image data.

[c5] The digital halftoning system of claim 4, further comprising digital logic circuit that receives the halftone image data, and that, based on the selection indicator, either passes the halftone image data without changes or selects at least a portion of the halftone image data and replicates the selected portion of the halftone image data to produce replicated halftone image data.

[c6] The digital halftoning system of claim 4, wherein the plurality of halftone screens includes at least a clustered-dot halftone screen and is a stochastic halftone screen.

[c7] The digital halftoning system of claim 4, wherein the look-up table outputs high addressability halftone image data having a spatial resolution that is greater than a spatial resolution of the continuous tone image data.

[c8] A method for generating halftone data from continuous tone image data, comprising:
selecting one of a plurality of Holladay counters;
outputting address bits from the selected Holladay counter; and
outputting halftone image data from a look-up table based on at least the address bits from the selected Holladay counter and the continuous tone image data; and
controllably processing the halftone image data based on the selected Holladay counter.

[c9] The method of claim 8, wherein outputting halftone image data from the look-up table comprises outputting high addressability halftone image data having a spatial resolution that is greater than a spatial resolution of the continuous tone image data.

[c10] The method of claim 8, wherein the plurality of halftone screens includes at least a clustered-dot halftone screen and a stochastic halftone screen.

[c11] The method of claim 10, wherein, when the selected Holladay counter is a clustered dot halftone screen, controllably processing the halftone image data comprises outputting the halftone image data without processing the halftone image data.

[c12] The method of claim 10, wherein, when the selected Holladay counter implements a clustered dot halftone screen, controllably processing the halftone image data comprises outputting the halftone image data without processing the halftone image data.

[c13] The method of claim 8, wherein, when the selected Holladay counter implements is a stochastic halftone screen, controllably processing the halftone image data comprises replicating a portion of the halftone image data to produce replicated halftone image data.

[c14] A method for generating halftone data from anti-aliased image data comprising:
selecting one of a plurality of Holladay counters;
outputting address bits from the selected Holladay counter;
outputting a set of threshold values from a look-up table based on at least the selected address bits; and
comparing each threshold value of the set from the look-up table to the continuous tone image data to produce halftone image data.

[c15] The method of claim 14, wherein the plurality of halftone screens includes at least a clustered-dot halftone screen and a stochastic halftone screen.

[c16] The method of claim 15, wherein, when the selected Holladay counter implements a clustered dot halftone screen, controllably processing the halftone image data comprises outputting the halftone image data without processing the halftone image data.

[c17] The method of claim 15, wherein, when the selected Holladay counter implements a stochastic halftone screen, controllably processing the halftone image data comprises replicating a portion of the halftone image data to produce replicated halftone image data.

[c18] The method of claim 14, wherein outputting halftone image data from the look-up table comprises outputting high addressability halftone image data having a spatial resolution that is greater than a spatial resolution of the continuous tone image data.